

**Movie Legends:**

Divx codec (DivXpro5.01) (downloadable from [www.divx.com](http://www.divx.com)) is needed to play these movies.

**Movie S1:** Fission induced by photoactivation on a 1:1:1 tube network. Numerous fission events are observable, resulting in only small vesicles at the end.

**Movies Fig. 5A, and Fig. 5C** correspond to figures in the text.